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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/650,193

08/28/2003

Koichi Ohto

Q77191

6245

23373 7590 12/16/2008
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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT

PAPER NUMBER

2826

MAIL DATE

DELIVERY MODE

12/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/650,193

Applicant(s)

OHTO ET AL.

Examiner

Alexander O. Williams

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-7, 15-17, 51 and 215-218 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-7, 15-17, 51 and 215-218 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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Serial Number: 10/650193 Attorney's Docket #: Q77191

Filing Date: 8/28/03; claimed foreign priority to 5/8/02; 10/17/03; 5/5/03

Applicant: Ohto et al.

Examiner: Alexander Williams

This application is a continuation in part of application # 10/281321, filed 10/28/2002, now abandoned.

Applicant's Drawing Replacement Sheets/Verification of Translation/Amendment filed 9/8/08 to the election of Species I, figures 5A-8C (claims 1 to 17 and 51), filed 8/11/04, has been acknowledged.

Claims 1, 2, 8-14, 18-50 and 52-214 have been cancelled.

Claims 3-7, 15-17, 51 and 215-218 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 3, 15-17, and 215-218, it is unclear and confusing to what is meant by and why the claims language of “first insulating interlayer”; “first metal diffusion barrier layer”; “first etching stopper”; and “a copper-diffused copper layer” all comprises at least one of a SiCN layer, a SiC layer, a SiOC layer. It is confusing how these different layers can be defined by all the different types of layers with various elements? For example, how is the composition an insulating layer with the element carbon?

In claim 3, it is unclear and confusing to what is meant by “wherein said first insulating interlayer comprises **at least one of a SiO₂ layer, a SiCN layer, a SiC layer, a SiOC layer and a low-k material layer** and **said low-k material layer** comprises one of **a ladder-type hydrogen siloxane layer and a porous ladder-type hydrogen siloxane layer.**” It is unclear what is included with the “at least one” choice. Does the “first insulating interlayer” include the choice from the “at least one” including “a low-k

material layer”? If this is in one of the first insulating interlayer, and “a low-k material layer” is not in the at least one and for example “a SiCN layer” is chosen, how is the further language of “**said low-k material layer** comprises one of **a ladder-type hydrogen siloxane layer** and **a porous ladder-type hydrogen siloxane layer**” further limiting the claimed structure?

In claim 16, it is unclear and confusing to what is meant by “a first **silicon-diffused metal** layer.” Please explain how the silicon is diffused into the metal layer.

In claim 51, it is unclear and confusing to what is meant by “a silicon-diffused copper layer including no copper silicide formed thereon **and and** buried in the groove. One of the “and” should be deleted.

Claim 218 recites the limitation “said first etching stopper” in the claim. There is insufficient antecedent basis for this limitation in the claim. The claim claims both “first etching stopper” and “first diffusion barrier layer.” Is this structure correctly claimed and properly described in the specification?

Any of claims 3-7, 15-17, 51 and 215-218 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

Response

Applicant's arguments filed 9/8/2008 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

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The insertion of Applicant's additional claimed language, for example, "in claims 3, 15, 16, 51 and 215-218, " cause for further search and consideration to make this action final.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272 1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alexander O Williams/
Primary Examiner, Art Unit 2826

/AOW/
12/14/08